UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,479	08/29/2001	Sihem Amer Yahia	1999-0673	6228

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EXAMINER
WOO, ISAAC M

ART UNIT	PAPER NUMBER
2172	7

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 09/941,479	**Applicant(s)** YAHIA ET AL.
	Examiner Isaac M Woo	**Art Unit** 2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2001*.
2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-17* is/are rejected.
7)☐ Claim(s) _ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *08 February 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6</u>.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Drawings

1.   Another set of formal drawings is required. Because drawings are damaged during the mailing process.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-5, 6-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandra et al (U.S. Patent No. 6,457,047, hereinafter, "Chandra").

With respect to claim 1, Chandra discloses, generating a topology cache (26, fig.1, col. 4, lines 7-49) of the distributed directory servers (30, fig. 1, col. 4, lines 7-49, cache directory server includes the lists of application cache lists (topology of cache)); storing the topology cache at each server, see (fig. 1, col. 4, lines 7-49); and upon receiving, at one server, a request from a directory client (72, fig. 3) associated with that

server, (fig. 3, col. 6, lines 10-61) sending a copy of the topology cache to the client to

determine the identity of each directory server that can return answers to the query (88,

fig. 3), see (fig. 3, col. 6, lines 10-61, col. 7, lines 13-67). Chandra discloses servers (30,

col. 4, lines 7-49). Chandra does not explicitly disclose the *distributed directory* servers.

However, Chandra discloses, "server-mirroring. The basic idea is to statically replicate

the database, D, and the search application for the database, A, at a number of nodes

of the network so that in essence the query service is replicated in its entirety at multiple

nodes. If a web site has multiple mirror sites, a directory name service (DNS) lookup

(typically requested by the browser) will return multiple IP addresses in a list with a

predefined order and the browser typically selects the first IP address. If the server

selected by the browser is overloaded and a time-out occurs, the browser will select the

next IP address in the list as so on", see (col. 2, lines 15-51). This teaches DNS is one

of a directory service that is distributed through network. Thus, the servers can be the

distributed directory servers. Therefore, it would have been obvious to a person having

ordinary skill in the art at the time of the invention was made to include the *distributed*

directory servers in the system of the Chandra. Because the *distributed directory*

servers caches (lists) provide available service provider information system to a user,

which provides efficient application service to the user.

With respect to claim 2, Chandra discloses that topology cache includes

subordinate and superior knowledge references associated with each directory server,

defining its neighboring directory servers, see (fig. 1, col. 4, lines 7-49).

With respect to claim 3, Chandra does not explicitly disclose the limitations for claim 3. The points of limitations are to form query plan with requesting query to each cache server and to find out available cache server with combining every server's query results. Chandra discloses, "FIG. 3 is a flowchart illustrating a method 70 for handling dynamic service requests in accordance with the invention. In particular, the method, based on the particular service request, such as a query, attempts to find the best solution to the service request. The solution to the service request may include returning a cached results, executing the query, see (fig. 3, col. 6, lines 1-34). This teaches that cache service is requested for every server in turns and checked available cache server and results are forwarded to client. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention was made to include forming at the client, a distributed query evaluation plan P for a given query Q, based on the topology cache T sent to the client, where P = QSl@S1 ...... Qsk@Sk, where S1, ..., Sk are defined as relevant directory servers for query Q extracted from the topology cache T and Qsl is the particular query for use with server S1 in the system of the Chandra. Because the distributed cache plan is to check and find the cache server that has high probability for cache hit rate, which improves cache searching time.

With respect to claim 4, Chandra discloses generating a schedule for contacting the relevant servers included in the distributed query evaluation plan, see (fig. 3, col. 6, lines 1-34).

With respect to claim 6, Chandra discloses sending the original query to the

directory server that manages the queries base-entry-DN; and sending modified queries

to all other relevant servers identified in the topology cache, the original query modified

by replacing either the base-entry-Dn, the scope, or both the base-entry-DN and the

scope, see (fig. 3, col. 6, lines 1-34).

With respect to claims 7-9, Chandra discloses the scheduling step comprises

contacting subsets, each and all relevant directory servers in parallel, see (fig. 5-8, col.

7, lines 12-67).

With respect to claim 10, Chandra discloses that the query comprises a complex

query, see (fig. 3, col. 6, lines 10-61, col. 7, lines 13-67).

With respect to claim 11, Chandra discloses that hierarchical query including

either multiple-base-DNs, existential queries, conditional queries, or any combination,

see (fig. 3, col. 6, lines 10-61, col. 7, lines 13-67).

With respect to claim 12, Chandra discloses that complex query comprises an

aggregate query including at least numeric macro conditionals, see (fig. 3, col. 6, lines

10-61, col. 7, lines 13-67).

With respect to claim 13, Chandra discloses root node, defined as the distributed evaluation query plan P; and a plurality of non-root nodes comprising a first set of server query nodes QSi for relevant server Si in the topology cache F, and a second set of conditional nodes, the conditional nodes including existential queries and macro ("if") conditionals, wherein server queries are defined as AND nodes and conditional nodes are defined as OR nodes, see (fig. 3, col. 6, lines 1-34, fig. 5-8, col. 7, lines 12-67).

With respect to claim 14, Chandra discloses a) evaluating all existential queries at the conditional nodes; b) expanding all macro conditionals to general query expressions; and c) evaluating the server query nodes, see (fig. 3, col. 6, lines 1-34).

With respect to claim 15, Chandra discloses a) generating a distributed query plan tree PT, a root node, defined as the distributed evaluation query plan P; and a plurality of non-root nodes comprising a first set of server query nodes QSi for relevant server Si in the topology cache F, and a second set of conditional nodes, the conditional nodes including existential queries and macro ("if") conditionals, wherein server queries are defined as AND nodes and conditional nodes are defined as OR node; evaluating said distributed query plan tree to determine the different types of nodes; and scheduling evaluation of conditional nodes before server query nodes, see (fig. 3, col. 6, lines 1-34, col. 7, lines 13-67, Note: disclosed system of the Chandra checks every server in turns to find relevant server against cache query).

With respect to claim 16, Chandra discloses evaluating existential nodes prior to evaluating macro conditional nodes, see (fig. 3, col. 6, lines 1-34, col. 7, lines 13-67, Note: evaluating root cache server with priority).

With respect to claim 17, Chandra discloses creating a cache of all existential nodes in a query, determining the answer to each existential query; and populating the existential query cache with the determined answers, see (fig. 3, col. 6, lines 1-34, col. 7, lines 13-67, Note: evaluating root cache server with priority).

4.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chandra et al (U.S. Patent No. 6,457,047, hereinafter, "Chandra") in view of Weider et al (U.S. Patent No. 6,490,589, hereinafter, "Weider")

With respect to claim 5, Chadnra discloses the query associated with the directory client, see (fig. 3, col. 6, lines 10-61, col. 7, lines 13-67). Chandra does not disclose an LDAP query. However, Weider discloses the client issues the LDAP query, see (fig. 5, col. 8, lines 37-56). The client issues the LDAP query. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention was made to include the LDAP query in the system of the Chandra. Because the LDAP (Lightweight Directory Access Protocol) is defined by the IETF in order to encourage adoption of X.500 directories. The Directory Access Protocol (DAP) was seen as too

complex for simple Internet clients to use. LDAP defines a relatively simple protocol for updating and searching directories running over TCP/IP. Thus, LDAP provides on-line access directory service to users.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gulati et al (U.S. Patent No. 6,597,684) discloses the system for distributed architecture provides efficient computation of routes in Quality of Service (QoS)-based routing scenarios. Using a client-server model, only designated route servers store and maintain a database containing the entire network topology, so that each network node is not required to store and maintain the network topology. Client nodes maintain a cache containing pre-computed routes so that they can often make routing decisions autonomously. A client contacts a designated route server only when the client cannot obtain from its local cache a route to a given destination that meets the performance requirements. A client cache may contain pre-computed routes with designated QoS profiles to all destinations or to a subset of destinations. Route servers may also contain caches, which may contain pre-computed routes to all destinations in the network with all QoS profiles, or may contain only a subset of such routes.

Contact Information

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isaac M Woo whose telephone number is (703) 305-0081. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Breene can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

IMW
June 24, 2004

SHAHID ALAM
PRIMARY EXAMINER